

**2003**

## **Annual Consumer Confidence Report on the Quality of Tap Water**

### **Edwards Air Force Base Main Base**

***Spanish:*** Este informe contiene información muy importante sobre su agua para beber.  
Tradúzcalo ó hable con alguien que lo entienda bien.

## **INTRODUCTION**

This is an annual report on the quality of water delivered by Edwards Air Force Base (EAFB). Under the "Consumer Confidence Reporting Rule" of the Federal Safe Drinking Water Act, community water systems are required to report this water quality information to the consuming public. Presented in this report is information on the source of our water, its constituents and the health risks associated with any contaminants. We continually monitor the drinking water for contaminants. We are pleased to report our water is safe to drink.

## **WHERE OUR WATER COMES FROM**

The Edwards Air Force Base Main Base Drinking Water System draws water from two sources:

1. On-base ground water wells.
2. Surface water supplied by the Antelope Valley East Kern (AVEK) Water Agency.

We have ten on-base ground water wells supplying the EAFB Main Base Drinking Water System. The water from these wells goes to a booster stations where it is chlorinated to help to protect against microbial growth. The water is then pumped into the base distribution system.

In addition to the ground water wells, the EAFB Main Base Drinking Water system receives water from the Antelope Valley East Kern (AVEK) Water Agency through a water main. The water we receive from the AVEK Water Agency is supplied in finished drinking water quality form (this water line serves other AVEK customers such as the city of Boron). We add additional chlorine to maintain microbial control as the water travels through our system. The AVEK Water Agency supply is primarily from the California Aqueduct, a surface water source. As a water wholesaler, the AVEK Water Agency published their 2003 Water Quality Report earlier this year. We have included information on their water quality as an integral part of this report.

## **DRINKING WATER BASICS**

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over the surface of the land or through the ground, it dissolves naturally

occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

**Contaminants that may be present in source water include:**

- *Microbial contaminants*, such as viruses and bacteria that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- *Inorganic contaminants*, such as salts and metals, which can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- *Pesticides and herbicide* that may come from a variety of sources such as agriculture, urban stormwater runoff, and septic systems.
- *Organic chemical contaminants*, including synthetic and volatile organic chemicals that are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff and septic systems.
- *Radioactive contaminants*, which can be naturally occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, USEPA and the state Department of Health Services prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. Department regulations also establish limits for contaminants in bottled water that must provide the same protection for public health.

**Additional General Information On Drinking Water**

Drinking water, including bottled water may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the USEPA's Safe Drinking Water Hotline (1-800-426-4791).

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised people such as those with cancer undergoing chemotherapy, those who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. USEPA/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791).

**WATER CONSERVATION TIPS**

Turn water off when shaving and brushing your teeth.  
Run only full loads in washing machine and dishwasher  
Adjust lawn sprinklers to water the grass not the street.

Take shorter showers. Turn water off while lathering up.  
Use the garbage can rather than the garbage disposal.

***Water is a natural resource not to be wasted.***

## DEFINITIONS

**Maximum Contaminant Level (MCL):** The highest level of a contaminant that is allowed in drinking water.

**Maximum Contaminant Level Goal MCLG:** The level of a contaminant in drinking water below which there is no known or expected health risk.

**Public Health Goal (PHG):** The level of a contaminant in drinking water below which there is no known or expected risk to health. PHG's are set by the California Environmental Protection Agency.

**Primary Drinking Water Standards (PDWS):** MCLs for contaminants that affect health along with their monitoring and reporting requirements, and water treatment requirements (potability).

**Secondary Drinking Water Standards (SDWS):** MCLs for contaminants that may adversely affect the taste, odor or appearance of drinking water (palatability).

**90<sup>th</sup> Percentile Level:** The level of lead and copper at which 90% of drinking water samples taken in a system are below. This level is compared with the MCL for lead and copper to determine system compliance.

## ACRONYMS AND TERMS

AL	Action Level; the concentration of a contaminant that, if exceeded, triggers treatment or other requirements that a water system must follow
ND	not detectable at testing limit
ppm	parts per million; a unit of measure equivalent to a single penny in \$10,000, equivalent to milligrams per liter.
ppb	parts per billion; a unit of measure equivalent to a single penny in \$10,000,000, equivalent to micrograms per liter.
Level Detected	laboratory analytical result for a contaminant; this value is evaluated against an MCL or AL to determine compliance
Range	the range of the highest and lowest analytical values of a reported contaminant. For example, the range of reported analytical detections for an unregulated contaminant may be 10.1 ppm (lowest value) to 13.4 ppm (highest value). EPA requires this range to be reported.
pCi/l	picocuries per liter (a measure of radiation)

## SOURCE WATER ASSESSMENT

The Civil Engineering Department at Edwards Air Force Base has produced the 2002 Source Water Assessment, completed 16 May 2002, and it is on file in the Civil Engineering office (277-5000). Possible contaminating activities for the wells surveyed in this assessment include nearby abandoned wells, storm drainage discharge, above ground water storage tanks and nearby roads. The health risks from these activities are diminished through weekly monitoring of the potable water system. AVEK also provides a Source Water Assessment for the water they distribute. This is a state requirement and lists the Physical Barrier Effectiveness, Inventory of Possible Contaminating Activities, Vulnerability Ranking, Assessment Map, Assessment Summary, and Public Notification procedures.

## **MONITORING OF YOUR DRINKING WATER**

At Edwards Air Force Base, we monitor for the contaminant groups listed in Column 1 of the following table using EPA-approved methods. Column 2 of the table specifies the monitoring frequency.

**Contaminant Groups and Monitoring Frequency Table**

<b>Analyte/Contaminant Group</b>	<b>Monitoring Frequency</b>
<b>Lead and Copper</b>	Every 3 Years
<b>Inorganic Chemicals</b>	Every 3 years
<b>Radioactivity</b>	4 quarters Every 4 years
<b>Volatile Organic Chemicals</b>	Every 3 years
<b>Taste, Odor, Appearance Factors</b>	Quarterly

## **EDWARDS AFB 2003 WATER MONITORING RESULTS SUMMARY**

**Tables 1 – 3 list all of the primary drinking water standard contaminants that were detected during the most recent sampling for the constituent.** The presence of these contaminants in the water does not necessarily indicate that the water poses a health risk. The Department requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. Some of the data, though representative of the water quality, are more than one year old.

**Table 4 lists all of the secondary drinking water standard contaminants that were detected during the most recent sampling for the constituent.** The Department requires us to monitor for these contaminants in order to identify conditions that may adversely affect the taste, odor or appearance of drinking water. Because the MCL for secondary standard contaminants is not based on health effects, the presence of these contaminants in the water does not indicate that the water poses a health risk.

<b>Table 1</b> <b>MCLs, MCLGs, and Potential Sources for Coliform Bacteria</b> <b>Main Base</b> <b>Jan – Dec 2003</b>						
<b>Contaminant Name</b>	<b>Highest Level Detected</b>	<b>MCL</b>	<b>MCLG</b>	<b>State or Local MCL</b>	<b>Units</b>	<b>Major Source in Drinking Water</b>
Coliform, Fecal	0	No positive routine or repeat sample	0	Presence/Absence	NA	Human and animal fecal waste
Coliform, Total	1 positive out of 341	Presence of coliform in <5% of monthly samples	0	<5% of samples positive	NA	Naturally present in environment

<b>Table 2</b> <b>Primary Drinking Water Standard Contaminants</b> <b>Lead and Copper (Main Base)</b> <b>Jan – Dec 2003</b>							
<b>Contaminant</b>	<b>MCLG</b>	<b>No. of samples collected</b>	<b>90<sup>th</sup> percentile Level Found</b>	<b>Range IN (ppb)</b>	<b>AL/ MCL</b>	<b>No. Sites Exceeding AL</b>	<b>Typical Source of Contaminant</b>
Lead (ppb)	2.00	30	1.26	ND – 2.33	15	0	Internal corrosion
Copper (ppm)	0.17	30	.00318	.0004-.00468	1.3	0	Natural deposits

\*Note: Range reports last year of data (2003). . Next sampling event will be 2006.

### **Lead**

Lead is a natural metal used in some pipe fittings. Small amounts of lead can enter drinking water from internal corrosion of these fittings. Infants and children who drink water-containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.

### **Copper**

Copper is a metal found in natural deposits and is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water-containing copper in excess of the action level over

many years could suffer liver or kidney damage. People with Wilson's disease should consult their personal doctor.

<b>Table 3</b> <b>Primary Drinking Water Standard Contaminant</b> <b>Inorganic Chemicals</b> <b>Jan – Dec 2003</b>						
<b>Chemical or Constituent</b> (and reporting units)	<b>Violation?</b>	<b>Highest level detected</b>	<b>Range</b>	<b>MCL</b>	<b>PHG (MCLG)</b>	<b>Typical Source of contaminant</b>
Arsenic (ppb)	<b>No</b>	34.7	ND – 34.7	50	10	Erosion of natural deposits; runoff from orchards; glass and electronics production wastes
Chromium (ppb)	<b>No</b>	15.7	ND – 15.7	50	2.5	Discharge from steel and pulp mills and chrome plating; erosion of natural deposits
Flouride	<b>No</b>	.61	.30-.61	2	1.0	Erosion of natural deposits; water additive; discharge from fertilizer and aluminum plants
Nitrate (as NO <sub>3</sub> ) (ppm)	<b>No</b>	7.22	ND – 7.22	45	45	Runoff and leaching from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Total Trihalomethanes (ppb)	<b>No</b> 53.7 Avg.	131.4	ND – 131.4	80	n/a	By-product of chlorination
HAA5	<b>No</b> 16.07 Avg.	53.5	ND-53.5	60	n/a	
Gross Alpha (pCi/l)	<b>No</b>	3.9 (Annual Avg.)	0.83 – 10.6	15	0	Radioactive mineral deposits.

### **Arsenic**

The “highest level detected” represents the concentration of arsenic directly from one well. This water is blended with AVEK water prior to distribution that reduces the final concentration. The MCL is based on the annual average. The EPA established a new standard of 10 ppb for arsenic in 2001. All public water systems are required to comply with this standard by 2006. EAFB is currently evaluating methods to reduce the levels of arsenic to meet the new arsenic standard by 2006.

Arsenic is a naturally occurring mineral known to cause cancer in humans at high concentrations. Some people who drink water containing arsenic in excess of the MCL over many years could experience skin damage or problems with their circulatory system, and may have an increased risk of getting cancer.

### **Nitrate**

Nitrate in drinking water at levels above 45 mg/l is a health risk for infants of less than six months of age. Such nitrate levels in drinking water can interfere with the capacity of the infant’s blood to carry oxygen, resulting in a serious illness; symptoms include shortness of breath and blueness of skin. Nitrate levels above 45 mg/l may also affect the ability of the blood to carry oxygen in other individuals, such as pregnant women and those with certain specific enzyme deficiencies. If you are caring for an infant, or you are pregnant, you should ask for advice from your health care provider.

### **Total Trihalomethanes**

Trihalomethanes are a by-product of chlorination in drinking water. Some people who drink water containing Trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous systems, and may have an increased risk of getting cancer. Trihalomethane sampling results are based on an annual running average and that average does not constitute a violation, and does comply with the MCL.

### **Gross Alpha**

Gross Alpha contamination is required to be sampled every 4 quarters every 4 years. The numbers reported are from samples taken in 2001. The next batch of samples will be taken in 2005.

<b>Table 4</b> <b>Secondary Drinking Water Standard Contaminant</b> <b>Jan – Dec 2003</b>					
<b>Chemical or Constituent</b> (and reporting units)	<b>Violation?</b>	<b>Avg</b>	<b>MCL</b>	<b>Detection Limit</b>	<b>PHG</b>
Hardness (ppm)	<b>No</b>	105.03	none	N/A	N/A
Alkalinity (ppm)	<b>No</b>	81.2	none	N/A	N/A
Specific Conductance (umho/cm)	<b>No</b>	510.1	1600	N/A	N/A
Total Dissolved Solids (tds) (ppm)	<b>No</b>	269.3	1000	N/A	500
Color (units)	<b>No</b>	10.4	15	N/A	N/A



Turbidity (National Turbidity Units)	<b>No</b>	1.43	5 Units	N/A	N/A
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### **Turbidity**

Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of water quality. High turbidity can hinder the effectiveness of disinfectants. Areas affected by high turbidity have been placed on a regular flushing schedule to reduce turbidity.

### **Public Involvement**

Questions regarding the content of this report may be directed to: 1<sup>st</sup> Lt Anderson Macatumbas of the 95<sup>th</sup> Aerospace Medicine Squadron/Bio-Environmental Engineering Flight 277-3272. Additional questions may be directed to Gary Hatch at Environmental Management public Affairs, 277-1454

The following periodic meetings are also open to the public:

- Restoration Advisory Board (RAB) meetings are held quarterly
- Base Town Hall meetings are held semi-annually
- Base Commanders Call meetings are held periodically

Times and locations for these meetings will be posted and televised on channel 6, announced in “*Desert Wings*” and can also be accessed on the base website.